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Pictorial Landscape-Photography

PAUL LEWIS ANDERSON

YD 10193



PICTORIAL LANDSCAPE-PHOTOGRAPHY

TO THE
AMERICAN



PLATE I.—THE PATH, SUNLIT SNOW

Pictorial Landscape - Photography

BY
PAUL LEWIS ANDERSON



ILLUSTRATIONS BY THE AUTHOR

UNIV. OF
CALIFORNIA

BOSTON, U.S.A.
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1914

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Part I—The Subjective Side

SO many technical articles of the highest quality have appeared in photographic magazines, and there are so many textbooks giving formulæ, that it would seem superfluous to treat of such matters extensively in the present volume, even apart from the fact that the writer believes the subjective qualities to be a much rarer possession than technical skill. Therefore, this essay has been written more with a view to point out a method of approaching the cultivation of artistic vision than with the idea of furnishing a technical reference-book, particularly as technique cannot be taught any more than can any other subject. In the last analysis, all acquired knowledge must come from effort on the part of the student, the most that the teacher can do being to indicate the direction which the studies should take. Therefore, in the following pages technique will be treated more suggestively than didactically, the more so as the writer believes the best technique to be the simplest that will permit the worker to express himself, any addition being a hindrance rather than a help. This is not to say that any one should confine himself to ordinary or even to orthochromatic plates, or that he should make all his prints in platinum — this is not to simplify technique, but to throw away the advantages offered by panchromatic plates and by such superior printing-mediums as carbon and gum — but the fact remains that if such methods will invariably do all that the artist wishes them to do it is foolish to carry technical studies any further, the technique of photography being so extensive and so complicated — far more so than that of painting — that no one can hope to know all of it. Furthermore, a man may be a great artist without being a great technician, provided he has something to express; but the finest technique will leave us cold if it expresses no spiritual quality. In short, technique may be

regarded as a tool, and it is as foolish for a man to refine it beyond his needs as it would be for a machinist to insist on using the tools of a watchmaker, whereas the watchmaker could not work successfully with the coarser appliances.

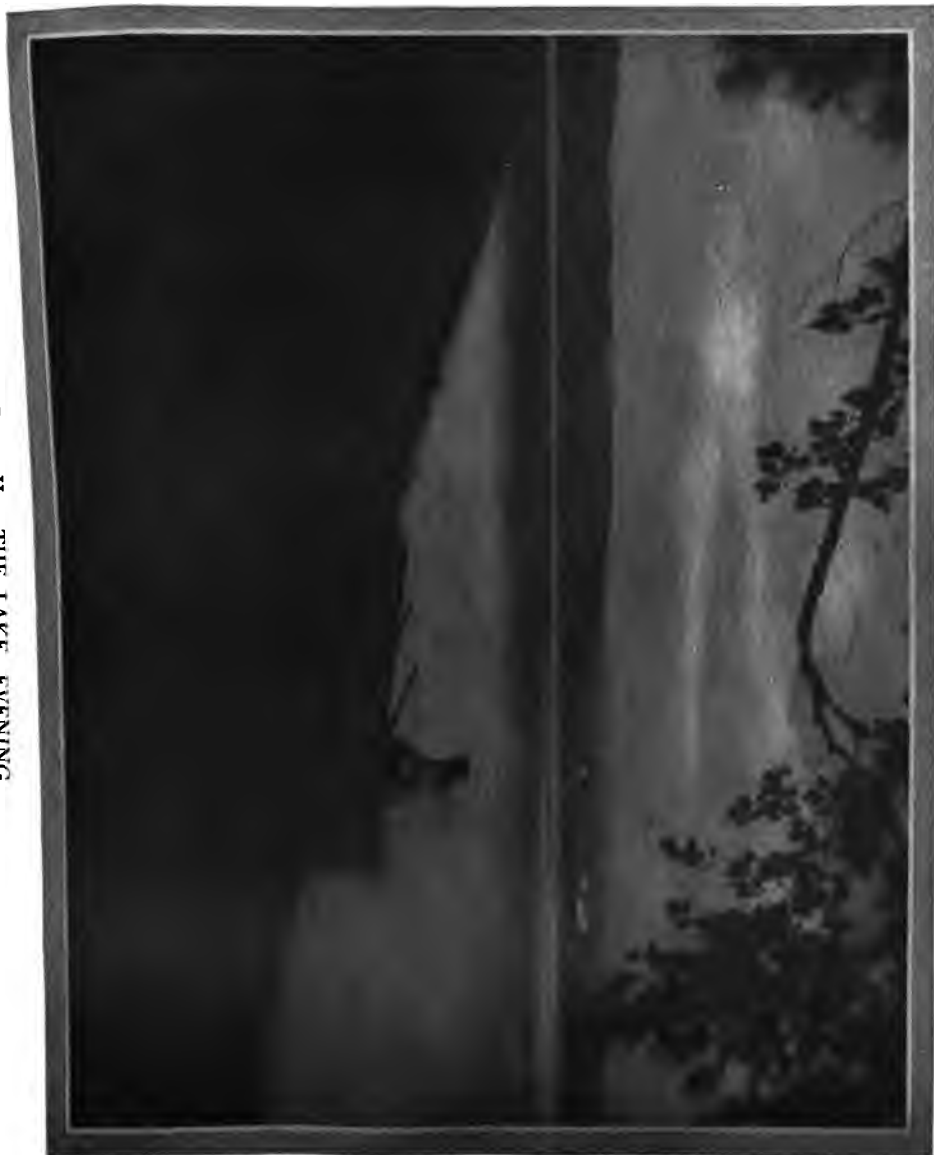
It is astonishing how readily one who is endeavoring to express himself becomes a good technician, often without conscious effort in that direction. He works day after day, striving to say what he wishes, with repeated failures and discouragements, and finally discovers that his efforts have resulted in the development of a degree of technical skill which, a few years before, seemed to him unattainable, and this consideration, perhaps, may serve to encourage some who find their knowledge insufficient for the ideals which they entertain.

No specific discussion of the accompanying illustrations will be undertaken, for three reasons. First, the necessary limitations are such that a moderately complete examination of the individual pictures would occupy an unduly large proportion of the space available. Second, it is very difficult — almost impossible — for one to analyze his own pictures. Third, more benefit will result if the principles of construction are stated and the student is left to make his own application of them, than if their relation to finished works is pointed out for him to see without effort.

It should be borne in mind, however, that a photograph loses at both ends of the scale when reproduced in halftone, particularly if either pure white or deep black be included, and this loss is inherent in the process, and is not to be avoided, no matter what care be taken with the reproduction, so that the accompanying reproductions are not necessarily correct in their rendering of the tonal relationships of the originals.

It will be assumed throughout that the reader is not interested in producing simple records of fact, but wishes to do work that will be entitled to be called art, and it may be well first to consider wherein lies the difference. A record-photograph, as the name implies, is a transcript of some scene, without the photographer's having exercised any control over the result; but the

PLATE II.—THE LAKE, EVENING



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moment an effort is made to express any feeling or emotion the product becomes in greater or less degree a work of art. The first and simplest form is that in which the worker has felt the beauty of the scene and has attempted to preserve it in order that it may give pleasure to himself or to others, and the next stage in the development of the artist comes when he feels that this pleasure might be increased if he modified the result, whether by a change in the viewpoint, by choosing a different time of day or different atmospheric conditions, or by working on either negative or print. The prints made during the first stage are seldom to be differentiated from the mere record, and in most cases the dividing-line between the two states of mind is not perceived even by the worker himself. Then comes the stage in which the photographer is inspired by the wish to express some abstract emotion, so that others may feel what he felt when looking at the scene, and in the final stage he endeavors to express an emotion, though he may not have observed any particular landscape which aroused it in him. So it will be seen that almost anything more than the merest record can fairly be called art, its value depending on the skill with which the artist has caused others to feel the emotions which he wanted to express.

A few words as to the manner in which a landscape, or a picture of one, can arouse an abstract emotion may not be out of place, though a complete discussion of this fact would occupy too much space. In the first place, all our emotions are the result of memories, whether of occurrences that have taken place in the life of the individual — and may perhaps have been forgotten by the conscious memory — or of occurrences that have influenced the development of the race. As instances of the latter type we may give the fear of the dark, fear of reptiles, and the curious fear that some persons entertain of cats. Often these fears are the direct result of the education of the individual, but frequently they cannot be traced to any such source, and we are forced to conclude that they are the result of atavistic memories, persisting in the race through hundreds of thousands of years, from the

time when all these objects of fear were perils to the race. Our pleasurable emotions may be referred to a similar source, and, since the mind operates largely through association, it will be seen that a picture which brings to mind — whether to the conscious mind or not — a memory of any sort, will arouse some emotion corresponding to the image called up. It may be added that the racial memories and those which are not of the conscious type are more powerful than those which are associated with some definitely remembered scene or occurrence.

The sentiments which may be aroused by a landscape-photograph are numerous, joy, horror, sadness, calm, peace, and others being expressible by pure landscape, whereas the introduction of figures or of some suggestion of life affords the possibility to express still more, such as sympathy or love, though here we begin to approach the realm of genre. It seems to be generally the case that the deeper emotions are the quieter ones, and the worker who wishes to produce the greatest possible effect will usually make a greater effort to arouse these than to appeal to the lighter ones, such as joy or amusement. However, strict adherence to this plan will produce monotony of results and, unless the photographer makes only a few prints in the course of a year, will quickly cause him to repeat himself. The writer feels it to be a mistake for an artist to specialize, as an occasional excursion into portraiture by a landscape-worker, or into genre by a portraitist, will result in a fresher viewpoint when the artist returns to his own field. It may be mentioned that the greatest artists have never confined themselves to their specialties, some of Rembrandt's finest work having been in landscape or still-life, while Velasquez did genre as well as portraiture, and the same is true of others. It may also be well to note that under-production is to be preferred to over-production, for, while the former means only less technical facility than would otherwise be possessed, the latter means that the worker is putting out pictures that have not been carefully considered, and this results, not only in immediate inferiority, but in a lowering of the worker's standard.

Since we have found that the fundamental purpose of the landscape-photographer is to arouse in the spectator some emotion, we may now take up the consideration of how this is to be accomplished, and, as indicated above, there are two ways to approach the problem, with perhaps a third. In the first method the photographer takes his camera and walks about the country until he finds some scene which, by association with past experiences, either individual or racial, arouses in him an emotion, when he photographs it, and, either by the medium of a straight print, or after manipulating either negative or print, or both, succeeds in conveying to others the sentiment which he felt. In the second method the photographer decides to attempt the expression of some emotion, and goes to some spot which he remembers from previous walks, or else takes his camera and walks about the country until he finds something which seems a suitable arrangement, the subsequent procedure being the same as in the former case. It is not meant that the worker have a definite idea that he is going to try to arouse some emotion; the mental attitude is almost always unconscious, and when this is not so the result is likely to be unsuccessful; but the photographer has an undefined feeling of some sort which impels him to try for a certain kind of picture, this feeling being, as a rule, the effect of either the weather or the state of his digestion. The third method is hardly to be considered a definite means of approaching the problem, as it consists in photographing anything which conforms to certain rather elastic rules of composition, and working on the negative and print until something resembling a picture is obtained. The second method is the best, and is most likely to result in work of a high type, though the first is the one most usually employed. The third is chiefly adopted by those photographers who pride themselves on the possession of "temperament," and it is characteristic of this class that they are the largest producers of "decorative studies." Incidentally, it may be remarked that all art is "decorative," even in its applied forms, and that, while it is not only perfectly proper but also necessary to make studies, these

should not be exhibited, the person who entitles an exhibition-picture "Study" simply advertising either his own affectation or his paucity of imagination. Many prints and many paintings are shown which have no reason to exist except that they are pleasing arrangements of line and tone, and, though some of them are undeniably beautiful and for that reason are valuable additions to our store of desirable pictures, possessing the merit which attaches to everything that makes life happier, the writer feels that they do not represent the highest development of which photography is capable. The Venus de Medici is beautiful, but is far inferior to the Venus de Milo, which, by the way, is not a Venus but a Victory. In other words, the highest form of art is that which is not merely pleasing but is also stimulating.

There are certain elements which are requisite in the construction of a picture, and the greatest of these is vigor. With this present much may be forgiven in the way of technical deficiencies, but without it nothing of enduring value can be attained, though this is by no means to deny the worth of delicate prints in either a high or a low key. Such pictures easily may have more strength than the bolder, full-scale work of less thoughtful workers, for the finest strength is that which is controlled.

Next to vigor in order of importance is unity. Birge Harrison has said that there is only one rule in art: "Thou shalt not paint two pictures on one canvas," and this is simply another way of saying that unity must always obtain. The purpose of the picture, the subject, and the method of treatment having been determined, care must be taken to see that nothing is allowed to enter that might detract from the effect. This does not mean that there must be no contrasts—contrast is one of the most valuable instruments that the artist has to work with, but merely that the contrasts must not be excessive and that no incongruities should be included. The amount of incongruity which may be included without injuring the effect depends on the observer, and an illustration will serve to make this clear. The writer has seen in the show-case of a professional photographer a



PLATE III.—THE LAKE OF TWINKLING LIGHTS

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portrait of a girl posed in front of a window. A brief glance was sufficient to show that the window was not a real one, but one of the painted backgrounds sold in the stockhouses, and there was no suggestion of light behind the figure, which was illuminated at the conventional angle of 45 degrees. Here, then, was a violation of unity which was apparent instantly to the writer, but was not apparent to the photographer, and similar instances might be cited. (Of course, it may be that the photographer was merely indifferent to the fault mentioned, but this does not seem probable.) Therefore, the photographer should cultivate his sensitiveness and his powers of observation, or he may be betrayed into incongruities which will offend the more highly trained observer.

The quality next in importance which a picture must have is reserve. The picture which tells the whole story, leaving nothing to the imagination of the spectator, soon becomes tiresome, and, while no essential should be omitted, nothing which does not aid the effect should be included, and, so far as possible, the imagination of the observer should be stimulated. More pleasure is found in a picture as well as in a story, if the spectator or reader does part of the work, and the more he does the better pleased he will be. Some aid must be given him, of course, or a blank sheet of paper would be the finest picture possible; but, other things being equal, the picture which leaves most unsaid is the best.

Here, then, we have two qualities closely related — mystery and suggestion. An example will illustrate the two, so we will suppose that we are standing in an open field in the early morning, before the sky has begun to lighten, and that between us and the eastern horizon is a row of heavy trees a hundred yards or so away. We can see no details anywhere — the trees are visible only in outline against a deep blue sky, and the field between us and them can be distinguished only as a space a trifle lighter in value than the intense black of the foliage. Here, then, we have mystery, for the dark shadows might conceal anything, a gipsy caravan, a herd of cattle, the outposts of an army, or an automobile-camp, and it depends on our imagination to people those shadows with any-

thing we may wish. Gradually the sky begins to lighten and we can see faint patches of a lighter value in the dark mass of the trees. Here suggestion comes into play, for one patch may have what seems to us the shape of a cow lying down, and we look until we fancy that we can see the whole animal, as the figures are seen in those clever drawings on magazine-covers, where a portion of the outline is shown and the rest left for the observer to fill in for himself. Another patch has a different shape, and we think it a horse, and so on. The sky lightens still more, and we see other shapes, and now we can perceive that what we took for a cow is in reality a wheelbarrow, while the horse is a pile of hay. Suggestion, however, may still be at work in other portions of the scene, though our illusions concerning parts of it have been dispelled; but as the light increases, one thing after another is shown, until with broad day there is no more reserve, and everything stands out in distinct outlines.

So we find that reserve includes mystery and suggestion, and that we can have the former without the latter; but it may be added that the imagination of the average person is not active enough to let him see anything in a pure, ungraded shadow, so that it is usually necessary to introduce some light as a stimulant to his imaginative powers. Suggestion is by no means confined to the inclusion of undefined spots of light or dark, but may take many other forms, as, for example, in the case of a body shown in motion with no visible cause of its motion, when the imagination of the spectator immediately suggests an explanation. If a golfer be shown at the end of the swing, the eye follows along the probable line of flight of the ball which is supposed to have left the club, or if an object be shown suspended in the air the spectator looks to see who has thrown it. Another illustration is in the case of a road leading over a hill, where we have a definite line leading to an invisible point, and the spectator follows the line visually until it disappears, then continues to do so mentally. The arrangement of lines in a picture also has a powerful suggestive quality, horizontal lines suggesting calm and quiet, vertical



PLATE IV.—A CONNECTICUT-ROAD

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lines strength and dignity, diagonal ones motion, and sinuous ones motion combined with grace. The effect of various kinds of line will, however, be more fully discussed when we consider composition.

The emotions which can be aroused by a landscape may be divided into two broad classes, the lively and the quiet. Of the former the chief is that of joy, whether rejoicing at some definite thing, such as light or warmth, or the simple joy of living. In the latter class we find calm, sadness, wonder, and reverence as the principal ones, the last-named being too big for the photographer, and being usually beyond even the painter, as may be seen from the failure of most of the attempts to present satisfactorily the Grand Cañon on canvas. It is impossible to give any rules for the expression of these emotions through the medium of a picture, for art which is made by rule invariably fails of its purpose, but we can state a few principles which are of assistance to the artist, whether photographer or painter.

In the first place, joy is usually associated in our minds with two factors — light and expansiveness. We see the latter quality in the motions of a person who is happy, the chest being thrown forward, the head raised and the arms spread abroad, and a general air of buoyancy prevailing, in contradistinction to the contracted motions of one who is suffering, either mentally or physically, the latter state resulting in depression of the body, tenseness of the muscles and lowering of the head, in sharp contrast to the manifestations of happiness. These facts suggest at once that joy is to be expressed in rounded forms, the swelling of hills, trees in full foliage and cumulous clouds, whereas sadness is best indicated by lines of drooping, angular character, preferably converging towards the center of the picture. The mention of full-foliaged trees and cumulous clouds suggests that pictures expressive of joy usually are to be made in the spring or summer, whereas those which convey an emotion of sadness most often are to be found in the autumn or winter, and this is in fact the case, another factor entering strongly into the question in the shape of a feeling

—resulting from thousands of years of false training—to the effect that decay and death are not merely natural phenomena, but are definite visitations from a higher power, and are to be deplored. This feeling is so strong that only the greatest minds are free from it, even though reason tells us that it is an erroneous one, and, since emotions are stimulated by the sight of phenomena associated with past experiences, and since autumn and winter are the seasons of decay and death—even though only temporary—this association aids in the expression of the emotions founded on the absence of buoyant, expanded forms.

It has been noted that joy is associated not only with expansiveness, but with light, this fact being doubtless a psychological condition remaining from the days before artificial light was invented, when night, the time of darkness, was made terrible by nocturnal beasts of prey. Whatever the cause, the fact remains that light is associated in our minds with happiness, darkness being a concomitant of sadness, whence it follows that a high-keyed picture, filled with the feeling of sunlight, will be more likely to give an impression of joy than a low-keyed, gloomy one. Incidentally, the next to the last word in the preceding sentence illustrates the fact that has just been indicated, for to most persons the word “gloom” connotes sadness, whereas the true meaning is merely “darkness.” The key of a print is a matter of technique; but one cannot introduce the feeling of direct sunlight into a picture if it did not exist in the original subject, and direct sunlight is more often to be found in summer than in winter, when the days are short, and even in the middle of the day the light is only about three-fourths as strong—this applies to the latitude of New York—as in the warmer season. To be sure, many bright, joyous pictures may be made in winter, if a sunny day is chosen when there is snow on the ground; but in general, it will be found easier to do such work in spring or summer, reserving the colder weather for the expression of the quieter emotions.

Turning now to an analysis of the emotions of calm and peace, we find that, although they are among the quieter ones, there is

Map of Canada

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ANTHROPOLOGICAL



PLATE V.—THE LAKE IN THE PARK

no association of sadness, but rather of a restrained happiness, and we would expect to find them expressed best by a combination of the qualities required for the conveying of joy and sadness, and this is, in fact, the case, for, although it is not possible to give the desired impression by means of angular, contracted lines in a high key, it is possible, and almost necessary, to employ rounded lines in a low key for the purpose. Therefore, such pictures are better made in spring or summer, choosing — or simulating — a time of day when the light is dull. Care must be taken, however, that if the dull light is imitated by technical procedure, clouds and shadows which are characteristic of the middle of the day are not introduced, this fault, which is by no means uncommon, being a very unpleasant violation of unity.

Wonder is not a very deep emotion, so is not of great value to the artist, but may be expressed by a scene which is outside of our every-day experience, taking care not to make it too bizarre, else the emotion aroused will be merely one of amusement; and reverence, as pointed out, requires a larger picture than photographic technique permits, though it may be noted that when the expression of an emotion is aimed at, the print should always be as large as the technique chosen will allow, for, although a small picture may be as esthetic, and as pleasing in line and tone as a larger one, the larger is to be preferred when it is a question of subject. This is due, probably, to the fact that the area comprehended by the eye is so large that it is impossible to concentrate the vision on a small space, to the exclusion of other objects, whereas at the same time, the size of objects in the smaller picture is so far removed from that which we know to be true that it fails to convince us. If enlarging from small negatives, however, there is a danger that faults in composition, whether of line or of tone — which were not apparent in the small original — will become noticeable, and this fact has led some writers to suggest limits of enlargement. As a matter of fact, if the original is well composed it may be enlarged to almost any dimensions without loss of quality, for the grain of the image, which becomes apparent on enlarging

more than fifteen or twenty diameters, is compensated by the fact that a large print is usually examined from a much greater distance than a small one.

One more quality remains to be considered before we pass on to the subject of composition, and that is indicated in a remark once made to the writer by W. D. MacColl, to the effect that all art, to be of any value, must contain an element of surprise. At first sight this may appear to be a mistake, and at variance with the principle of reserve, but on consideration it will be found that such is not the case. The element of surprise may consist of any unexpected incident, even so slight as the sudden change in direction of a line having its effect, though this is more of a structural quality. The point, however, is that there must be something in the picture which would not be expected from the rest of it, thus affording the spectator a slight shock. If the shock is too great the result will be unpleasant, but without any it will be merely pretty, and such pictures have no lasting value.

The introduction of figures into landscape-work increases the number of emotions that may be expressed, adding fear, despair, love, and others, and at the same time facilitating the expression of those that can be conveyed by pure landscape; for if a figure expresses, by its attitude, any emotion, the influence on the spectator may be considerable. Of course, this involves additional care, and it is desirable that there be a marked degree of sympathy between the photographer and his model, as the work of the former is thereby made much easier. For this reason it is well to select some friend who is interested in the work and persuade him or her to pose, rather than to rely on the professional model, whose interest is generally confined to the financial reward. If working with a figure-model the difficulties are greatly increased, as it is then almost always necessary to depend on the professional, and, though failure in the use of draped figures may result in mere inadequacy of expression, failure with a nude figure becomes positively offensive. It is necessary to introduce mystery to a great degree when using a figure-model, or the spectator will be

inclined to inquire into the identity of the model, and will lose sight of the qualities which the picture is intended to possess, the result being that he will receive merely the impression of an undressed person outdoors. It is very difficult to avoid the presence of some suggestiveness — which is different from suggestion — in work of this class, and much study should be given to the work of other photographers as well as of painters before making any attempt whatever.

A great writer on art once said that no picture could be truly great unless it included some suggestion of humanity, in the form either of a figure or of some work of man. This statement, however, seems to be an exaggeration, and largely an expression of personal feeling rather than of opinion, the fact being that for some observers such a suggestion is necessary to the fullest arousing of the emotions, whereas, for others, pure landscape may be equally impressive. Therefore, the worker is advised to introduce figures only if he himself feels the need of them, and to have confidence that he may reach the highest possible expression, even without such an addition.

Part II—Subjective Technique

Composition — Values — Definition — Detail

TO the person who wishes to analyze pictures, whether with a view to make them or merely to cultivate his appreciation, no better advice can be given than that he procure a copy of "Pictorial Composition," by Henry R. Poore, and study it; for in this book the structure of pictures is reduced to certain principles—the author realizes perfectly the impossibility of giving rules for producing works of art—and these fundamental principles are discussed in a manner that is at once clear and complete. It is not advised that the student read this book once or even twice, for such a course will almost inevitably result in his going out and trying to construct pictures on the same lines as the examples given, and the effect will be stilted and without value; but if the book be read repeatedly, with attention to the more important passages, the principles given will become second nature, and will be applied without conscious thought, often without the worker realizing what has taken place. There are many other books on composition, conspicuous among them being the work of Professor Arthur W. Dow. Professor Dow's book, however, is written entirely from the standpoint of the synthetic worker, whereas Mr. Poore's approaches the subject analytically as well, so that, while the former is of value to the painter or designer, whose function is to construct patterns, starting from empty spaces, the latter is of more use to the photographer—and especially to the landscape-photographer—whose work depends on the seeing and abstraction of patterns from among the multitudes furnished by nature. Incidentally, it might be remarked that synthetic work generally is considered to require a higher type of mind or a more vivid imagination than analytic; but the writer does not feel this to be the



PLATE VI.—THE ORCHARD

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case. One type of mind cannot be considered higher than the other, any more than the scientist can be considered superior to the artist, or vice versa; they are simply different, both being equally necessary.

When the worker has determined what idea or emotion he wishes to express, and has found a scene which, either through the medium of a direct photograph or by means of manipulation, may be made to fulfil his desire, it becomes necessary to consider the manner in which it is to be presented by photographic means, and, leaving out of the question for the time being the more truly subjective qualities, we will first take up the structure, for without good composition the probability of successful expression is much diminished.

✓ The need of composition may be understood readily when we realize that to convey an idea it is generally necessary to have some principal object to which all else in the picture shall be subordinate, this principal object being the one which is most powerful in conveying the fundamental idea. Since, however, one object, if isolated, is rarely able fully to express an abstract idea — as is shown by the literal quality of a vignetted portrait — it becomes necessary to introduce additional detail, which, without competing for interest with the principal object, either shall explain or emphasize it. Since this minor detail must be so arranged within the picture-space as to leave no portion either vacant or unduly obtrusive — a vacant spot is always obtrusive — and since in order to do this it is necessary to lead the vision in orderly progression over the entire picture, a knowledge of the fundamental principles of composition is necessary. Some workers may say that they compose by instinct, or rather by innate feeling; but it will be found that in such cases the act of composition has been preceded by study of pictures and unconscious absorption of the principles involved. If these principles can be indicated in an article, it may serve to direct the attention of the student toward a method of study and thereby save him much time and effort.

Certain fundamental facts underlie the composition of a picture, and we will simply state them briefly as follows, omitting any discussion of the reasons why they obtain; but it must be understood that they are psychological facts and not principles of composition.

Every line and every spot in a picture has a power to attract the vision, this power depending on the character of the line or spot and on its relation to its surroundings.

The vision tends to follow along a line in the direction of the impulse received from objects seen before reaching the beginning of the line.

Other things being equal, the vision tends to follow vertical or diagonal lines upward rather than downward, or, in the case of a horizontal line, from left to right.

A straight line is followed more readily than a broken one, and the same is true with reference to a curved line, which is the equivalent of the broken one, though it in turn is followed more easily than the broken line.

The attractive power of a spot depends on its area and intensity, a light spot being more attractive than a dark one of equal measure, and also on its surroundings. Thus, if we have two spots of equal size, one white and the other black, and place them on a ground of gray formed by the mixture of equal quantities of black and white, the white spot will be more attractive; but if they be placed on a ground of very light gray, the black will be more so. Hence we see that, other things being equal, the vision seeks light and recoils from shadow, and also that the attractive power of a spot increases with the contrast between it and its surroundings.

The attractive power of a spot is directly proportional to its area.

We may take up now the principles of composition, and it will be well merely to state them at first, discussing them afterward, for a full comprehension of each is of the utmost importance. They are as follows:

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PLATE VII.—THE PATH

Unity
Harmony
Contrast
Repetition

Rhythm
Subordination
Simplicity
Balance

These are, of course, fundamental art-principles as well as principles of pictorial composition; but the present discussion is concerned only with the latter application.

Unity is the most important, and may be defined as the combination of parts to form a homogeneous whole. The principle was discussed to some extent in the first part of the present essay; but it should be borne in mind that unity is of two sorts, natural and artificial — the former that which would be perceived by the layman, the latter that which is dependent on arbitrary laws. This difference may be illustrated by a reference to the drama, wherein an anachronism is a violation of natural unity, whereas making the supposed action of the play occupy more time than the representation is a violation of the Aristotelian unities. In photography the printing in of clouds, such as are never seen at the season or the time of day represented, is a violation of natural unity; on the other hand, the printing in of any clouds whatever, the manipulation of the negative, local work on the print, or the introduction of several colors, is a violation of artificial unity. If the worker possesses force of character and originality of thought, combined with good taste, he may safely disregard all arbitrary laws, which are of no permanent value and are often hampering; but this is a matter for each one to decide for himself.

Closely allied to unity is harmony, which is the arrangement of parts in such a manner that they will form a pleasing whole, and this may be considered to be of two kinds — negative and positive. The former is that which results in an arrangement which is not definitely unpleasant, whereas the latter goes farther and produces a conjunction of lines and masses that — as is the case with certain arrangements of musical notes — is pleasing simply of itself, without relation to the remainder of the composition.

Unity and harmony are not the same, however, as the former may exist without the latter, though harmony presupposes the existence of the more abstract quality. If harmony be carried too far, the result will be mere prettiness without vigor, and it is necessary to introduce contrast.

Contrast may be of line, of tone, or of thought, and may be either gradual — as in the case of a line diverging at a progressively increasing angle from the main line — or abrupt, as in the case of a sudden transition from light to dark. Contrast is one of the most valuable aids possessed by the artist, as it may serve either to counteract the effect of repetition — as will be explained later — or to give strength to an otherwise weak composition. For instance, a twilight-scene, chiefly in low or middle-tones, may easily prove monotonous, especially if composed, as is usually the case, mainly in horizontal lines; but the introduction of a space of strong light in the sky, particularly if so arranged as to afford an attraction in a vertical direction, may serve to give vigor to the whole. It should be noted that the addition of such a spot would tend to make the adjacent masses seem darker than they would appear without it, and at the same time would raise the key of the whole picture, so that to counteract this tendency it would be necessary either to add a space of deep shadow, which would lower the key simultaneously and restore the middle-tones to their proper value, or to print deeper, thereby lowering the values sufficiently to compensate the addition of the light. Contrast should be used sparingly, whether in line or in light, as an excess will make the result either spotty or diffuse — in short, non-homogeneous.

The repetition of the lines or values of the principal object, either directly or with slight variation, in the same key or in a different one, serves to explain the principal object, but at the same time detracts from its vigor, so that it becomes necessary to introduce some line or some value to counteract this tendency, unless, of course, repetition is employed to soften an excessively strong accent. An illustration may be found in the case of a forest-

scene, where one tree, the principal object, would be meaningless if isolated. The introduction of other trees, smaller in size because more distant, serves to explain the large one; but at the same time the repetition of the vertical lines diminishes their force, which may be restored by the introduction of a few horizontal lines in the form of strips of alternate light and shadow. Repetition of a value operates in the same manner, and the necessary emphasis is secured in this case by the use of one or more spots differing widely in key, though, as already pointed out, either the spot or the line may be employed to give contrast, apart from repetition.

Rhythm is allied to repetition, but is not identical with it, being broader in its application, and consisting of a recurring line or value, or series of such, with perhaps a definite accent. Both rhythm and repetition are more useful in formal art than in landscape, but have an application in the latter, rhythm often being exemplified in the structure of clouds, especially those of the cumulous variety. In general, though, landscape-work is more concerned with variety than with rhythm.

Subordination is rather a quality than a principle, and means simply that the detail which is introduced to explain or to give emphasis to the principal thought or object must not compete with this in interest. It will be apparent that, should this be the case, the effect of the principal object will be diminished, and one of the greatest difficulties that the photographer has to encounter is the inclusion by the lens of excessive detail, special objectives having been designed, and methods employed, to avoid this fault. Careful choice of subject and careful focusing will go far toward attaining subordination, and proper exposure and development will help to secure it at either end of the scale, the final recourse being the manipulation of negative or print.

Simplicity is related to subordination, as it means the elimination of all unnecessary detail and gradation, keeping only that which is required to give clearness and vigor to the expression of the fundamental emotion or thought. Simplicity is not necessary,

for a great quantity of detail may be introduced without harm if it be subordinated properly; but the more detail that is used the greater becomes the difficulty to keep it non-obtrusive, and the less the chance of including mystery—that most desirable quality. In short, no more detail should be used than will suffice to carry the idea, and in this case detail means not only recognizable articles, but gradations of tone and outlines of objects; that is, anything which serves to attract attention. There is a kind of simplicity which consists in reproducing literally some subject which contains little detail; but in such a case it is forgotten that the subject with little detail has usually little meaning, and the highest development of the photographer's art demands that he have the perception to realize and the skill to reproduce only those portions of the subject which have value.

Balance is the last of the fundamental principles which we will consider, and it is one of the most important. We have seen that the picture must have a principal object, which usually should be placed in the strongest space—that is, the space which naturally has the most attractive power—within the frame. Since regularity generally is found to be monotonous, the weakest point of the picture-space is the center, and the next weakest are to be found on the horizontal and vertical axes of the frame, so it follows that our point of interest probably will be located away from the center, and in neither a horizontal nor a vertical direction from it; but no indication can be given of the distance it should be from the edges of the picture, as this varies with each composition. Since composition as understood by Occidental workers—the Japanese do not seem to agree with this—requires that the vision be led in due progression over the entire picture, it is necessary to provide some attraction on the other side of the central line from the principal object, and this may be done in any one of three ways, or in a combination of two of them, it being merely noted in passing that landscape-compositions are almost always arranged about a vertical axis. The first method of providing balance is to place an attraction of equal size and value, and of

MAP OF
CALIFORNIA



PLATE VIII.—THE PATH, SNOW

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ALBERGIA

the same general form as the principal one, in the same relative position to the central axis as the latter, but in the other half of the picture-space. This method, useful as it is in decoration and design, is not much employed in landscape- or portrait-work, because of the tendency which it has to produce monotony, and the second method is to be preferred, this consisting of the use of an object smaller in size but of greater attractive power, and placed at a greater distance from the central axis than the principal one, the construction being either on the vertical plane or in perspective, the smaller object being, in the latter case, in either the middle-distance or the distance. This method has the advantage of giving variety and vigor to the result, and is most often used in pictorial art. The third method is to introduce apparent motion of the principal object toward the space where attraction is desired, for motion toward a space always causes the vision to turn in the direction indicated. This and the second method are sometimes used together with excellent results; for the third method, if used alone, tends to produce a feeling of unrest.

The type of line predominating in the composition has a marked effect on the feeling conveyed by the picture, and care should be taken to choose the type best suited to the emotion to be expressed, not only as regards the structural forms included in the arrangement, but as to the linear dimensions of the print. Like most of the facts in connection with composition, the different kinds of line derive their value from association, forms which we regard as being strong and dignified, being, in nature, characterized by a preponderance of vertical lines, whereas the more graceful and gentle shapes are those in which curved lines are the most apparent. Also, diagonal lines are associated with movement; whereas horizontal lines are most expressive of calm and peace, and zigzag ones indicate, as might be expected, swift, erratic motion. Of course, all these effects are modified by the surrounding conditions, and necessarily must be affected to a greater or less extent by the introduction of contrasting lines intended to give emphasis;

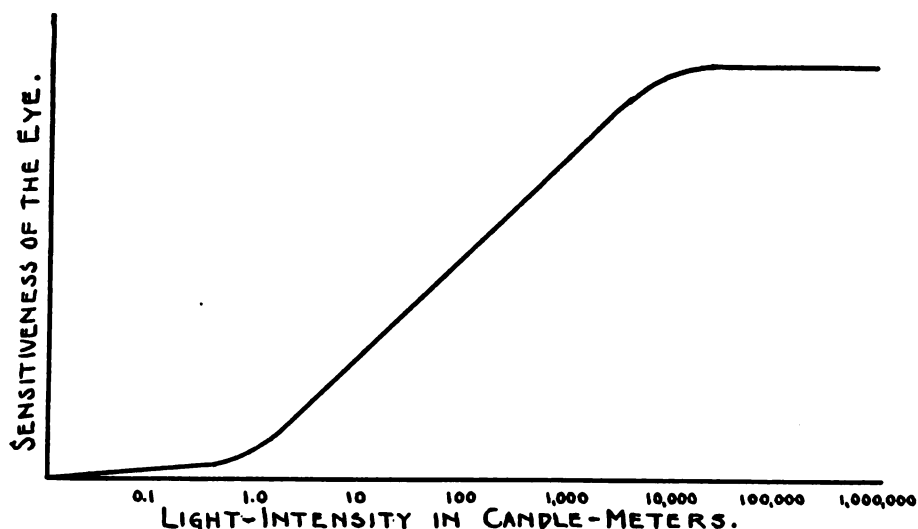
but the artist will select such lines as are most likely to aid his expression, remembering always that an arrangement of spots, a strong attraction, or a strong impulse in any given direction, may be equivalent to a line.

The question of values is one of the most abstruse which the artist has to encounter, and is of special importance to the photographer, whose work, lacking the element of color, depends for its effect largely on relative values. Line of, course, is important, as it must be to any worker in monochrome; but the technical methods employed by the photographer inherently are capable of rendering the values of nature more perfectly than any other medium, and the photographer has the power to modify them — even without manual intervention — to as great an extent as the worker in any other process. The objective side of the subject is learned easily, for, given a panchromatic plate as well as the ordinary and orthochromatic types, a visual luminosity-filter and a set of contrast-filters, together with an actinometer and some knowledge of the effects of under- and overexposure and under- and overdevelopment, the photographer is equipped to render the relative values of the subject correctly, to compress or extend the scale, or to emphasize any particular color at will. This, however, is the least part of the matter, for the subjective effect of values is of the greatest importance, and some photographers with little technical knowledge have become noted for their treatment of values, simply by reason of their appreciation of the more abstract qualities, whereas the finest technician can never produce anything of artistic value if he goes no farther than this knowledge. It is, however, foolish to decry technique, for, other things being equal, the greater a man's knowledge, the more chance there is of his producing work that will have permanent value. As an instance, we may refer to the Austrian workers Kühn, Henneberg, and Watzek, who produced landscapes as fine in conception and feeling as any that have ever been done, with the exception of some of Clarence H. White's, and were at the same time as skilful technicians as any one could be.

TO THE
ABORIGINAL



PLATE IX.—THE BROOK, EVENING SUNLIGHT



CURVE SHOWING SENSITIVENESS OF THE EYE
TO VARYING LIGHT-INTENSITIES.

In considering the rendering of values and the subjective effect of modifying the representation given by the plate, the first thing is to determine the extent to which the eye appreciates the relative luminosity of natural objects, and the curve given above shows this clearly. Abscissæ represent luminosity in terms of a standard candle, and ordinates the sensitiveness of the vision. It will be seen that with an illumination of less than one candle-meter the eye sees very little, but the amount of detail that is visible rises with disproportionate rapidity as this point is approached, the rise being virtually uniform between one and one thousand candle-meters. One candle-meter corresponds approximately to the illumination of a white house in moonlight, and ten thousand is that of white clouds near the sun. Hence it will be seen that if we wish to give the impression of faint illumination, such as moonlight or twilight, we can do so by arranging our relative values in accordance with the lower part of the curve — that is, having little differentiation in the shadows, with relatively

brilliant lights — and if we wish to give a feeling of strong light we should have flat highlights and relatively strong contrast in the shadows. Readers familiar with the work of Messrs. Hurter and Driffield will recognize at once the general form of this curve as similar to the characteristic curve of the dryplate, and the thought will suggest itself that faint illumination is to be suggested by underexposure and strong light by overexposure, using these terms to indicate the relation of the exposure to the normal; and this is in fact the case, for such a course will produce the effect desired, no matter what the actual illumination of the scene may be. It must be noted, however, that in a weak light the strongest light is far below the maximum which the eye can see, so white paper should never be used in any part of the print — unless the source of illumination is included — the most brilliantly illuminated object being a medium gray, and that there are in nature no black shadows under a full light, so that in a sunlit landscape the darkest space will be a medium gray. In other words, when representing either a high or a low key we must use a soft negative and adjust the result by modifying the exposure, printing light or dark as the case may be. The principal thing to guard against is underexposing a brightly lighted scene and developing too far, for heavy shadows will prevent the suggestion of sunlight. Of course, it may be desired to have empty shadows, devoid of detail, together with a high key, in which case underexposure may be correct, but the negative should be kept soft.

There are, however, some conditions which require a strong negative, as may be seen if we stand facing west at sunset, with a row of heavy trees in the middle-distance. Examining the trees, themselves, we may be able to see detail in them; but if the gaze be concentrated on the sky we shall receive the impression that the trees are simply a solid black mass, though on shading the eyes from the sky much detail will become visible immediately in the shadows. Here, then, we need a strong negative, such as will give a full-scale print, but the exposure must be governed by the location of the interest. If this is in the trees, the exposure

must be sufficient to show faint detail in the shadows; and if it is in the sky, the trees must remain empty

If for any reason empty shadows are used, it must be borne in mind that no matter how black a shadow is in nature it never gives a feeling of flatness, but always seems to have some depth, and this is true even though it may be devoid of any gradation. This characteristic may be suggested in the print by introducing either a little gradation, which, however, should not suggest any natural object, or else a lustre. Platinum paper or, in fact, any paper in which the image is deposited in metallic form on the surface of the support, is not so successful in rendering this effect, even though varnished, as a medium in which the pigment is supported in a film of appreciable thickness of some colloid, such as gelatin or gum arabic. Bromide paper is not suitable for the purpose, as it will not give blacks of sufficient richness; but carbon and gum answer the purpose admirably. Photogravure also gives very rich blacks, and if a little gradation is introduced the suggestion may be perfect, better, indeed, than with either of the other processes advised; for it must be admitted that the lustre is only a makeshift, nature's deepest tones never being lustrous, but having the peculiar "velvety" texture of a good photogravure. Sunlight is easier to render, as almost any paper is capable of giving good quality in a high key, the failures being in the lower tones.

If the values of the scene are rendered correctly and the scene is of a type with which the spectator is familiar, there will often be a suggestion of color, the strength of this suggestion depending, of course, on the activity of the observer's imagination, which impels him to remember what he has seen in nature, thus giving added force to the impression which the picture makes on him. This effect may be heightened by choosing a printing-color which will help to stimulate the imagination, as the psychological power of different pigments varies greatly. Thus, a snow-scene printed in blue-black on white paper will be powerfully suggestive, though any one who has ever observed snow closely knows that it may

contain an infinite number of colors, so that mere blue can never render the scene accurately, any more than gray can render a summer-landscape. The prevailing impression of snow, however, is that it is cold, and a cold color heightens the effect through association. Similarly, the most obvious impression regarding sunlight is that it is warm, and by printing a summer-landscape in warm gray or brown, the effect is intensified. As the light grows weaker colors lose their visibility, form being distinguishable long after color has disappeared. The cold colors — blue, blue-green, and green, also all secondaries and tertiaries having a predominating admixture of blue, lose their visibility first, the warmer colors — yellow, orange, red, and mixed colors in which these predominate, remaining visible as color after the cold colors have become black. Furthermore, the light usually becomes warmer toward sunset, and, though it again becomes cold afterward, this fact is not realized by the average observer, who associates warmth with dusk. Hence, twilight-scenes should be printed in a warm color, except in the case of winter-pictures, which are to convey a sense of cold. If, though, the scene is illuminated by the moon, the character of it will be cold, that being the color of the light reflected by the moon except when it is near the horizon, in which case it is so weak in illuminating-power as not to be very useful for pictorial purposes. Hence, a cold color should be selected for moonlight-pictures, though this should be no more than a cold black, positive color tending to detract from the effect.

While dealing with color, it may be well to say a few words concerning the development in this direction which seems to be taking place among photographers, some of whom, working in gum or oil, attempt to give the colors of nature by working over the print locally with different pigments. The writer cannot approve this method of work, for color is the most abstruse subject in all art, requiring long and earnest study in order to master it, and the photographer is seldom willing to give this effort. Then, the painter who attempts to give color works partly from a trained



PLATE X.—A COUNTRY-ROAD, TWILIGHT

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ABBOUAD

memory and partly from color-sketches, whereas the photographer relies chiefly on an untrained recollection of the scene. Then, too, it is easy for the painter to draw color, although it is difficult — almost impossible — for him to draw form; but the camera can draw form with the utmost ease and accuracy, color being difficult for it. This being so, it would seem best for the photographer to devote himself to the application of the possibilities of his medium, instead of trying to do what is hard for it to accomplish. Painters know better than to do this, and do not attempt what is beyond the power of the medium in which they may be working. What has been said must not be construed as adverse to three-color or autochrome-work — both of these being perfectly legitimate applications of the art — but merely as a disapproval of the arbitrary application of colors to different portions of the print, whether this be done by means of transparent dyes on the picture, or by one of the control-processes. As regards the use of the screen-plate color-processes, however, it must be admitted that one may lose more than he gains. There is a peculiar quality that is attainable in photography, as well as in painting, that can be indicated only by the word "texture." This has nothing to do with the rendering of the textures of different materials, which is largely a question of relative values, but refers to the superficial appearance of the picture. Any painter can recognize this quality, and will know what is meant by the word, but will be unable to describe it, even though he himself is one of those who attain it. It is, to be sure, a quality which has nothing to do with the expression of the subject, but since it is very pleasing to the spectator it is valuable, for anything which pleases is a help to the picture. Of those photographers with whose work the writer is familiar, Clarence H. White and Karl Struss have attained this quality to the highest degree, and it adds greatly to their work. In autochrome-work, however, this precious quality is totally lost, and, in fact, it cannot be got in any transparency. The writer recently saw a collection of autochromes and of prints by the same worker, and though the former were fully equal to the

latter in composition and arrangement, and had in addition the great attraction of brilliant and harmonious color together with great luminosity, they were far less pleasing than the prints, simply because they lacked texture, whereas the prints had it to an extraordinary extent.

The degree of definition is one of the most discussed questions in photography, and there is no way to determine the precise degree of definition to suit the individual case. We can, however, determine the maximum degree of fineness of definition desirable, for this bears a precise relationship to the size of the print. As is well known, the angle of vision of the eye is comparatively narrow, so that if a picture is to be viewed as a whole it is necessary to retreat some distance from it. Also, the apparent sharpness of a line increases with the distance from which it is examined. Lines which are too much blurred are unpleasant; so if the spectator finds such in a picture he retreats from it until they appear sharp, whereas if the lines are sharply defined, he tends to approach within ordinary reading-distance. Hence, the definition should be such as to force the observer to the proper viewing-distance for the size of print, but in addition to this we must take into account the esthetic effect of a blurred line. Even if the definition is softened, the spectator will not retreat much beyond the proper viewing-distance, and it may be that a softening of definition at this distance is desirable, partly because a harsh line is unpleasant, and partly for the undeniable heightening of the suggestion of mystery which results from the use of some of the methods available for the softening of outlines. Of all these methods the writer much prefers the use of a soft-focus lens, either in making the original negative or on the enlarging-camera; for such lenses, in addition to giving soft outlines, also produce a vibrating effect of light which carries through the whole print and is unattainable by any other means known to the writer, being wonderfully suggestive. In fact, the writer feels that harsh outlines are exceedingly offensive, and would suggest that every owner of an anastigmat or rectilinear should also possess a single lens for use

in enlarging. The highly-corrected lenses, of course, have the great advantages of speed and flatness of field; but it must be borne in mind that they are primarily scientific instruments, and as such are of little use to the artist, whose purpose is quite different from that of the scientist. This is by no means to say that art is of greater value than science, for both are equally necessary to our happiness and welfare, but merely that the two are different, and that in the choice of camera-objectives, as in other things, their needs are separate.

The introduction of a certain amount of detail is necessary for the purpose of explanation, and, in fact, every object presented may be considered as detail, though the term is generally used to indicate minor details, such as leaves, twigs, etc. It is always a question how much of this minor detail may be included without detracting from the effect of the whole, and since it is often beautiful in itself, the tendency is to employ too much rather than too little. A way — the best, in fact — to determine what should be left out, is to omit everything which does not actually aid the principal object to convey the sentiment that is to be expressed. If this be done, there need be no fear of overloading the picture, and it is extremely unlikely that anything of value will be omitted, whereas the inclusion of more than this procedure calls for probably will injure the effect. It has been said that this minor detail is often beautiful in itself, and it may be the case that what would be minor detail in one picture may be the motive of another. For instance, the writer has a photograph of a wood-interior, the chief interest of which centers in the slanting rays of light falling through the openings between the leaves. The picture was taken in the autumn, and at the time the ground was covered with a mass of fallen leaves, very beautiful in themselves, but so prominent as to detract from the main interest, and it became necessary to subdue them by manipulation of the negative, though a photograph with the leaves as the motive would have been pleasing. When an instance of this sort is encountered, the best plan is to make three exposures, one in which the principal

object is emphasized, one in which the emphasis is given to the minor detail, and one giving equal prominence to both. The last will usually be thrown away, but will serve to prevent any regrets on account of a possible loss of opportunity, whereas each of the others may prove to contain a picture. This advice, of course, will not be followed by the advanced worker, who generally knows what he wants, or can decide when on the ground; but it may be of use to the beginner, and at all events will enable him to study at his leisure the effect of different forms of treatment.

The figure consists of two parts. The top part shows a single hexagon with vertices labeled 1 through 6 in a clockwise direction starting from the top-left. The bottom part shows a larger section of the lattice, with vertices labeled 1 through 12, illustrating the connectivity between adjacent hexagons.



PLATE XI.—THE HILLSIDE

Part III—Technical Methods

NO elaborate discussion of technique will be given; for many articles, in the photographic magazines, as well as several textbooks on the subject, have given fuller information than could possibly be included in the space of such a volume as the present. Any good magazine is a mine of information, and valuable formulæ are to be found in the photographic annuals, especially those published in England and Germany. A few remarks may be given, however, and will perhaps prove of value.

In the first place, there are two distinct ways to approach the photography of landscape — the direct and by enlargement. In the first case the camera requires a plate practically the same size as that of the finished print, and the print is made directly from the original negative. In the second method a small camera is employed and the final print is made either by enlarging on bromide paper or by printing in some other medium from an enlarged negative. The former plan has the great advantage that it necessitates fewer operations and makes it easier for the worker to attain the desired quality in his print, which is often lost in the additional processes of making a transparency and an enlarged negative. It has, however, the disadvantages of limiting the size of the result and of being less flexible, the former resulting from the fact that a camera larger than 8 x 10 is too heavy for the average person to carry; the latter because the intermediate operations, mentioned above, permit the modification of results when the worker has become skilful enough to control his medium. It is necessary, therefore, for the worker to decide which of these methods he will follow, and it may be said that the writer prefers the former when the result is not to be larger than 8 x 10, whereas if prints 11 x 14 or larger are desired, the second is adopted. In

choosing a small camera for the second method, as large a one as can be carried should be selected, because it is easier to compose the picture on the ground-glass if the latter be of a fair size, and with too small a one faults of composition may pass unnoticed which will, on enlargement, be very conspicuous. As to ratio of enlargement, this has no effect, provided the arrangement of line and tone be good, so it is not necessary to take it into account. When making pictures for subsequent enlargement the writer almost always uses a $6\frac{1}{2} \times 8\frac{1}{2}$ folding plate-camera, though sometimes a $4\frac{1}{4} \times 6\frac{1}{2}$ kodak to which a focusing-back has been fitted, the latter because the use of the ground-glass is strongly to be recommended, and because plates are for many reasons preferable to films. The latter have, to be sure, the advantage of portability; but there their superiority ends, for in every other respect plates are better. The camera chosen should have a long bellows, horizontal and vertical swing-back — or front, which amounts to the same thing — rising and falling front, and a large front-board, together with a focusing-screw, though it is possible to use the clamp which is the only means of focal adjustment on the folding film-instruments. The view-type of camera combines these adjustments with a low price, though if greater compactness is desired, and cost is not an important item, the folding plate-cameras are better. The horizontal swing-back will seldom be used in landscape-work and may be dispensed with, though it is useful in portraiture and architectural photography.

If subjects which contain much red or orange are to be photographed, a panchromatic plate is necessary; but this is seldom the case in landscape-work, and for all practical purposes an ordinary orthochromatic plate will be found perfectly satisfactory, provided it be used with a ray-filter, as should ordinarily be done, and provided some means be employed to render it non-halation, as otherwise it will be difficult to include clouds with the landscape on the original negative, and branches of trees, where outlined against the sky, will be too vague, or may even disappear altogether. The American manufacturers furnish many good ortho-



PLATE XII. — SNOW

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ANNO 1900

chromatic plates in double-coated form, the additional coating rendering them non-halation, whereas the English makers rely more on backing, which is equally good so far as preventing halation is concerned, but does not provide the extra length of scale and consequent latitude of exposure which inheres in the double-coated plate. However, a single-coated plate, if properly backed, will have latitude enough for anything that a landscape-worker is likely to want to do. It cannot be denied that a panchromatic plate will do all that any other will do, and a little — or rather a great deal — more; so it is advised that such be employed, though those workers who wish to examine their plates during development — a proceeding which is unnecessary and is likely to result in fog — will probably prefer to use the orthochromatic variety, as this will stand much more light than the others. The writer uses panchromatic plates entirely, developing by time and modifying results by varying the length of development, a formula for developer, together with the time of development at various temperatures for a definite degree of contrast, being given with each box of plates, as this factor varies with the different emulsions. It should be stated, however, that, although the writer has said that he uses panchromatic plates entirely, the accompanying illustrations were all made with orthochromatic plates of the non-halation type. The explanation is simply that it is only within the past year that he has used panchromatic plates, and all the negatives from which these illustrations are taken were made before that time. This will also serve as an indication that, although the panchromatic type is valuable above all others for portraiture, such is not the case with landscape-work. At present the writer, whose work is largely professional portraiture, uses panchromatic plates for that purpose, and also for what little landscape-work he does, finding them better for the latter than any other, though not a great deal more valuable.

The writer's preference is for one of the soft-focus lenses, several good makes of which are on the market, although a single achromatic, known as a "single landscape" lens, will give excellent

drawing if opened to F/8 instead of F/16, as it is usually furnished. For the worker who desires slightly finer definition a rapid rectilinear is recommended, and if a small camera is to be employed an anastigmat may be a good investment, for these possess, as noted above, the advantages of speed and flatness of field, though the definition may be softened to any desired degree in enlarging. The use of a soft-focus lens on the enlarging-camera will result in a quality of definition very like that given by such an objective in making the original negative, the only difference being that in the former case the diffusion will be uniform throughout all the planes, instead of being least in the plane which was focused on, and increasing progressively in the distance.

A ray-filter should be part of the equipment, and preferably it should be procured from the maker of the plate, as in this case it is more likely to give satisfactory results, the manufacturers of the plate employed by the writer giving the exposure-factors for their various filters in conjunction with each batch of emulsion, as the relation varies. In any case, a filter giving full correction will be all that is necessary, and such a filter should not increase the exposure more than five times. A set of selective filters, that is, filters which will emphasize any desired color, may perhaps be useful, though the writer cannot recommend the use of such a set to the landscape-worker. The occasions when they would be employed will be rare, and the desired effect can usually be obtained with a little handwork on the negative, whereas the inclusion of such a set would mean adding to an equipment that is likely to be sufficiently complicated without it.

Some means should be used to determine the correct exposure, there being two types of instrument for the purpose, the first depending on the darkening of a piece of sensitive paper, the time required for it to match a standard tint being observed; the second being based on the fact that the correct exposure for different conditions of subject and light has been determined by experiment, the results being given in the form of a table. Either of these methods may be employed with satisfaction, though both

possess the defect of failing in a weak light, such as that of evening. Of the former type the best are the actinometers of Wynne and Watkins, and of the second the most convenient is the Wellcome Exposure-Calculator. This does not mean, however, that there are not others equally good, the tables given every month in *Photo-Era* being quite satisfactory. In weak lights the only thing to do is to determine as nearly as possible the exposure by reference to a table, then increase it in accordance with the dictates of previous experience. Some workers depend entirely on experience, but this ability comes only after years of practice, and even then is apt to lead to error when the conditions are unusual.

It is absolutely immaterial what developer is employed, so far as results are concerned, the only choice being in the matter of convenience, for any agent will give exactly the same results as any other, provided it be used correctly. There is, however, a great choice in the matter of ease of use, for the less work that is involved in making up solutions, the easier the work will be, and it is difficult enough at best. The developer preferably should be one of the type that tends to give soft results more readily than hard, and should keep well before using. These qualifications are possessed in a high degree by rodinal (or citol, which is the same product under another trade-name), this being a concentrated solution, to be diluted with water for use; also almost any of the long-factor developers several of which are obtainable in the form of compressed tablets, requiring only solution in water to be ready for use. In developing, either the tray or the tank may be used, the former being preferable if it is desired to develop several plates to different degrees of contrast, whereas if the same quality is wanted in all the negatives the latter should be employed. If developing by time, the duration of development must be varied according to the contrast wanted in the result, the contrast existing in the subject, the temperature and concentration of the solution, and the printing-medium to be employed. It will be apparent that if a certain degree of contrast is desired in the print, development must be longer if the subject was lacking in con-

trast, and shorter if the original was strong. Different printing-processes give different contrasts, and this must also be taken into account; but all these variations may be allowed for in determining beforehand the time of development, and, this having been decided on, the result can be attained with much more certainty and much less risk of damage to the negative than by the method of inspecting the plate at intervals during the progress of development. It may be objected that the timing-method offers less opportunity for the exercise of judgment than does the method of inspecting the plate, and at the same time renders the process more mechanical, thus detracting from the freedom and spontaneity of the result. Consideration will show, though, that this is not the case, the only effect of using the timing-method being to transfer the employment of judgment to a sphere where it may act with more certainty than is possible in the dim light of the darkroom, whereas freedom and spontaneity are out of place in the mechanical side of photography. They are, to be sure, of immense value — are, in fact, imperative — in selection of subject, in focusing and in the choice of a printing-medium, their presence in these parts of the work being what saves it from becoming a purely mechanical process; but they have no place in those details of the technique which can be determined scientifically. To develop by judgment — or, to put it accurately, by guess — is to place oneself on a par with a painter who, instead of learning that blue and yellow, when mixed, give green, should prefer to try the effect of mixing various pigments until he found the right ones.

There is, at the present time, a strong movement in favor of straight photography, so far as pictorial work is concerned; but the writer does not feel this idea to be sound. It is admitted that the admixture of photography and handwork, in such a manner that the mixture is apparent, is a violation of unity and as such is to be avoided; but it is perfectly true that often the desired effect cannot be obtained without personal intervention, and the writer holds it to be justifiable, in such cases, to work on

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PLATE XIII.—THE LONELY TREE

either the negative or the print, to any extent that may be necessary, taking care that the handwork does not show. Some brief notes on the methods of attaining this result follow.

If it is desired to raise the value of certain small areas, a cloth may be dampened with retouching-medium and rubbed over the film which gives it a tooth, so that work can be done with a pencil, HB or B being the most suitable quality. The best retouching-medium that the writer knows, and which is much better than the usual commercial article, is described in the Cramer dryplate manual. The formula is:

Rosin	120 grains
Turpentine	4 ounces

It is not necessary to use a very high grade of either ingredient, the ordinary commercial article being good enough. Should the work not be satisfactory, it may be removed by means of a cloth wet with the retouching-medium. If larger areas are to be worked over, or if it is desired to apply a greater amount of lead than can be deposited on the retouching-medium, the back of the plate may be flowed with the following solution, when work can be done on it readily with either pencil or stump.

Gum sandarac	2 $\frac{1}{4}$ ounces
Gum mastic	$\frac{1}{2}$ ounce
Ether	24 ounces
Benzole	12 ounces

This formula also is taken from the manual named above, and is an excellent one. Should any of the solution get on the film side of the negative, or should it be desired to remove the pencil-work, it can be done with a cloth moistened with alcohol.

If large areas are to be reduced in value, the best method is to employ Farmer's reducer with a soft brush, first soaking the negative in water for an hour or so, then applying the reducer locally, in very dilute form, rinsing the negative frequently, and bearing in mind that the action of the reducer will be slow at

first, but will become rapid as it proceeds. When it is desired to reduce small areas, the best plan is to make a transparency on a dryplate, either by projection or by contact, or, preferably, by the carbon process, using the transparency-tissue and transferring to a fixed and hardened plate, and to do the work on this with a pencil by one or the other of the methods outlined above, afterward making a negative from this transparency. The use of an etching-knife is not recommended, as it is difficult to work with such delicacy that the means will not be visible. For reducing density on a paper negative, a hard pencil-eraser is good, though the results from its use on a glass negative are not likely to be very satisfactory.

Any of the methods suggested above can be used equally well on the original negative, the intermediate transparency, or the enlarged negative, so that great control is possible even without resorting to any work on the print. It is, however, advisable that as little work as possible be done, the effect being obtained, so far as possible, by purely photographic means, as there is great danger of doing too much, while it is not always apparent to the worker that he is going so far as to render the mixture of photography and handwork visible.

In addition to the above-named methods, it is also possible to intensify either negative or transparency locally, using, preferably, some single-solution intensifier; but the writer has never felt much interest in this form of modification, as it is not so readily controllable as the pencil-method.

In choosing a printing-medium, the first quality to be required is permanence, for it is assumed that, if the worker has given time and thought to the production of a work of art, he will not want it to disappear in the course of a few years; whereas if he sells it, honesty demands that it be as stable as possible. There are certain printing-papers which can be depended on for permanence, and others which will give results that are permanent if care has been taken in their production, but not otherwise, whereas some are absolutely unstable in the best of circumstances. A black



PLATE XIV.—THE POOL, SNOW

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and white platinum print on linen paper or vellum may be relied on for permanence, and the same is true of a carbon or gum print in a stable color, but a gum print superposed on a black platinum will be durable in the same circumstances. Unfortunately, we have no means to know what pigments are used in making carbon paper; but the various color-manufacturers will furnish information about permanent pigments for use in the gum or gum-platinum process. If mercury is used to produce brown tones on platinum paper the permanence of the print becomes doubtful, though a permanent warm black may be obtained by using the developer hot, this treatment also serving to reduce contrast. In most cases the best effect will be attained by making the print in a warm or cold black or a brown, other colors not being desirable, and these tones are readily obtained in permanent form on platinum, carbon, or gum paper, but a stable warm brown may be obtained on bromide paper. It should be noted, however, that no black and white print on bromide or gaslight paper can be considered absolutely permanent, despite the claims of the manufacturers, and this is true of any color except one that is obtained by the redevelopment process, in which potassium ferricyanide, potassium bromide and sodium sulphide, or an equivalent, are used. Albumen paper gives very beautiful results, especially in the lower portion of the scale; and if the prints are properly toned, fixed and washed, they may be relied on to remain in good condition, but a failure in any of these processes will result in fugitiveness.

The next important characteristic to be considered in choosing a printing-medium is quality, which is appreciated more easily than described; but it is partly a question of rendering the gradations of the negative throughout the scale, and partly a question of surface-texture. The finest of all processes in this respect is photogravure; but it is a difficult and laborious one to handle, and few persons will be inclined to give the time necessary to become familiar with it. Next to this in the matter of rendering the gradations is carbon, though this fails somewhat in the lighter

values, as it is difficult to get absolutely pure lights without aiding development with a brush, and has a lustre which is not so pleasing as the dull surface of the former process. Platinum has a dull surface, and the commercial papers render the upper and middle-tones to perfection, but cannot give the richness in the lower part of the scale that is characteristic of carbon and photogravure. The rendering of the lower tones may, however, be improved by making one's own paper and coating and printing several times, or, if using the commercial papers, by diluting the developer with an equal volume of glycerin, which slows development so that it is under control, printing somewhat deeper than otherwise, and arresting development before it is complete, by means of a strong acid-bath—one part of hydrochloric acid to thirty parts of water.

The gum-process is probably next best to photogravure in quality, for it renders the values throughout the scale perfectly, even to the most delicate gradations in either the higher or the lower portions, and has less lustre than carbon. It is not an easy process to work, by reason of its flexibility; but, once mastered, it is of the greatest value to the artist. The variant of it known as gum-platinum, wherein one or more printings of gum are superposed on a platinum print, is also of value, and is easier to work than straight gum.

From what has been said in the earlier parts of this essay, it follows that the landscape-photographer who endeavors to arouse some sentiment in the observer will work mainly in a low key, and, as pointed out above, the best mediums for rendering this kind of effect are gum, carbon, gum-platinum and photogravure, so the worker will probably choose one or another of these. It is not recommended that any one process be adhered to exclusively, for each has its good features; but it will be found best to use one more than any other, for only by extensive use is familiarity with the characteristics of the medium attained.

It may be well to recapitulate briefly the conclusions we have reached in the course of this essay.

In the first place, it was found that the fundamental purpose of that branch of landscape-photography which can be classed as fine art is the arousing of some sentiment or emotion in the observer, and that the deeper emotions are the quieter ones. It was also found that these emotions are best aroused by prints which represent quiet scenes, especially those of evening, for brilliant sunlight and extreme darkness are less impressive than the effect of late afternoon, when the light has begun to fail but still retains strength enough to show a certain amount of detail in the deep shadows.

Such effects are rendered best on an orthochromatic or a panchromatic plate, and developed for only a moderate degree of contrast.

Due attention must be paid to composition of line, and this is more necessary to the photographer than to the painter, for the latter has the element of color to aid his arrangement, so that monochrome reproductions of the work of great painters are not necessarily good guides for the photographer.

Good technique is of the greatest importance; but undue attention to technique will result in loss of imaginative quality, and this is far more important than technical excellence, as a picture may be great without the latter, but can never be so without the former.

Finally, it may be added that no one can hope to attain pre-eminence in landscape-photography without much hard work and study; but no one should be discouraged by this fact from attempting it, for, even if he fail to reach the highest possible point, he will find that the pursuit affords him, and perhaps his friends, great pleasure, together with a not inconsiderable amount of physical benefit.



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